

## Be Calm with Theanine

by Ann Gerhardt, MD February 2020

**Bottom Line at the Top:** Ah, the chemical complexity of the beverages we drink! L-theanine, found naturally in tea and a weird edible mushroom interact with our brains to calm us without making us groggy,, and it's legal!

L-Theanine is a non-nutritional amino acid naturally found in green, black and white tea (*Camelia sinensis*), edible *Boletus badius* mushrooms and supplements marketed for stress and anxiety relief. The FDA has deemed L-theanine supplements as GRAS (Generally Recognized As Safe).

L-theanine helps with anxiety, mental focus and sense of well-being, without sedation or grogginess. Isolated studies have examined possible benefits to the immune system, blood pressure and cancer prevention, but we lack definitive proof for those. For what it's worth, it prolongs the lifespan of roundworms, not that that can directly translate to human survival.

L-theanine has a structure similar to neuroactive amino acids like L-glutamate. After it crosses the blood brain barrier it binds weakly to brain cell receptors. That binding induces release of the neuro-transmitters GABA (gamma-aminobutyric acid), dopamine and serotonin. Neurotransmitters function as chemical messengers between cells. GABA is interesting in that its message blocks excitatory nerves, so it is calming. Dopamine stimulates neurons which contribute to motivation, motor control, higher level mental function, arousal and reward systems. Medications which augment dopamine function are helpful in addiction medicine, Parkinson's disease and irritable depression. Serotonin accumulation in the brain, induced by eating a large turkey dinner and taking one of the popular SSRI anti-depressants, fosters a

sense of well-being and happiness and boosts cognitive function, learning, memory.

L-theanine also stimulates alpha brain wave activity. Alpha brain waves originate in the back of the brain of a relaxed, non-tired, non-asleep person whose eyes are closed. They surge when the brain is on idle or daydreaming. They appear while meditating or practicing conscious mindfulness with closed eyes. They calm depression and contribute to the success of biofeedback for pain. They appear during REM sleep. They seem to enable closed-eyed creative thinking, possibly explaining why some of our best ideas pop into our heads in the middle of the night. The downside is that an idled brain on 'auto-pilot' during a repetitive task leads to mistakes.

So now we know why a lovely cup of tea relaxes us so. As an added benefit, tea gives us a hand-to-mouth activity to replace drinking sugared beverages and eating junk food during an afternoon slump. Just don't count on tea or concentrated L-theanine supplements to replace Xanax for a panic attack.

In case you prefer supplements, we don't know effective, safe supplement dosage. Supplements have caused upset stomach, vomiting, diarrhea, low blood pressure, lightheadedness, shortness of breath, sleepiness and headache. ||